Waterworks Business Operations Plan Handbook for Community Waterworks and Nontransient noncommunity Waterworks

Effective August 1, 2007

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

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STOP! Most Transient noncommunity waterworks (such as restaurants and other foodservice establishments, hotels, marinas, and campgrounds) may submit a simplified Waterworks Business Operations Plan if one is required. Instructions and forms for the simplified business plan are located at http://www.vdh.virginia.gov/drinkingwater/owners/permit_applications_wbop.htm. Contact your Office of Drinking Water Field Office to determine eligibility to use the simplified plan.

Introduction

Owning and operating a public waterworks is a tremendous responsibility. In order to ensure that all public waterworks owners are aware of the seriousness and importance of their duties and obligations, the *Code of Virginia* has formalized the process for obtaining a waterworks operation permit, including submittal of a Waterworks Business Operations Plan. The entire application process is designed to verify that all prospective owners have adequate technical, managerial, and financial capacity to reliably produce and deliver abundant, pure drinking water to consumers.

Technical capacity is seen in the physical elements of a waterworks – its water source and infrastructure – and in the knowledge and skill needed to properly operate the facility. Managerial capacity is evident in a waterworks' planning and organizational expertise. Financial capacity is marked by the waterworks' ability to generate sufficient revenue to meet operational, maintenance, or expansion costs.

The technical, managerial, and financial elements that constitute capacity are interdependent, and all three elements are essential for ensuring the viability of a public water supply. Strength or weakness in one element of capacity can in turn either reinforce or impair the other elements. For example, a waterworks that demonstrates strong financial capacity by effective budgeting is in turn able to make appropriate plans for future infrastructure maintenance.

The Waterworks Business Operations Plan is the main tool the Office of Drinking Water (ODW) uses to assess the financial capacity of prospective waterworks owners. If you are constructing a new waterworks, or purchasing an existing waterworks, you must submit a Waterworks Business Operations Plan if you are a potential first-time owner of a public waterworks in Virginia. Owners may also be required to develop a Waterworks Business Operations Plan during enforcement procedures, or when they apply to ODW financial and construction assistance programs.

If you currently own or have previously owned a Virginia waterworks, ODW will advise you if a Waterworks Business Operations Plan is required. Normally, those owners demonstrating a history of compliance will not be required to complete this step of the operation permit application.

Every waterworks can profit from thoughtful business planning, even if a Waterworks Business Operations Plan is not required to obtain an operation permit. Developing a business plan will help you understand the waterworks' infrastructure assets, evaluate staffing needs, establish an effective budget, and assist with long-range planning. A sound business plan will improve the technical, managerial, and financial capacity of your facility.

There is no fee for ODW to review and process your Permit Application or Waterworks Business Operations Plan. If you are unsure whether a Waterworks Business Operations Plan is required for your situation, contact the ODW Field Office for your region for more information. ODW Field Office locations and contact information are listed in **Appendix A - ODW Field Office Locations (Page 22)**.

Instructions

The Waterworks Business Operations Plan (WBOP) is comprised of six parts. Parts 1 through 4 consist of written statements, charts, or tables that describe the waterworks and its history, staffing arrangements, management and operations policies and procedures, and facility planning. Worksheets for many of these WBOP attachments are provided in the **Appendices (Page 21)**. Part 5 consists of financial worksheets that summarize the waterworks' budget and financial resources. Part 6 is a certification statement and checklist of WBOP submittal attachments.

Effective plans must be prepared by skilled individuals who are knowledgeable about sound business practices, and who also are aware of the complexities of waterworks operations. ODW requires waterworks owners to have their plans prepared and submitted by a Certified Public Accountant (CPA) or Licensed Professional Engineer (P.E.). With prior approval from ODW, a WBOP can also be prepared by other individuals with significant knowledge of waterworks operations and management. Contact your ODW Field Office to discuss the professional qualifications of your WBOP preparer before you begin.

This handbook provides detailed descriptions of all of the elements that make up a complete WBOP. The handbook refers to required worksheets and tables to include in your WBOP. Financial worksheets for **Part 5** are available at http://www.vdh.virginia.gov/drinkingwater/owners/permit_applications_wbop.htm, or from your ODW Field Office on request.

The Adobe Acrobat versions of the forms that are included in the handbook or available as companion worksheets are designed to be completed online, or they can be printed for manual completion. If you are completing the Adobe Acrobat forms online, please note that your entries cannot be saved to your computer. After completing the forms online, print, sign (if applicable) and copy the forms for your records. All of the Financial worksheets are also available for download in an Excel format that can be saved to your computer.

To facilitate review and processing, your final submittal should be assembled in the order in which WBOP components are presented in the handbook. A checklist of required elements is provided following the Certification Statement form in **Part 6**.

For preparers seeking additional guidance, model WBOPs are available from the ODW Field Office on request for a variety of waterworks types and situations.

Upon completion of the WBOP, forward your submittal to the ODW Field Office for your region. A list of Field Office locations and contact information is provided in **Appendix A – ODW Field Office Locations (Page 22)**.

Part 1

Facility Description and Waterworks History

The purpose of this section is to provide information concerning the waterworks owner, facility description, and operator requirements. Your WBOP submittal should include documentation of the following:

I. **Owner Information** - Briefly identify the individual, company, or entity who will own this facility (e.g., board of Directors, Town council, Homeowners' Association, Partnership, etc.)

II. **Facility Description** - Provide a history of the waterworks, include when and why it was created, and provide a general description of the waterworks facilities. Indicate the type of waterworks, its classification, and population served.

III. **Operator Requirements** - The operation of public waterworks, both large and small, must rest in the hands of qualified persons. The number of such persons in a waterworks system depends on the facility size, and the type of treatment processes used. The number and class of operators in attendance and additional operating personnel must meet the minimum requirements in the Virginia *Waterworks Regulations* for protection of public health and operator safety.

After consultation with the Office of Drinking Water (ODW), list the required number and classification of operators and their attendance requirements.

Part 2
Staffing

The purpose of this section is to identify job positions and the individuals responsible for performing the critical tasks enumerated below. This information is necessary to develop, implement, and manage a plan that addresses the day-to-day operations of the waterworks, assign responsibility for critical tasks, and address the fundamental management concerns involved in operating and maintaining a successful waterworks. To meet these goals, the waterworks owners may have to develop job descriptions that encompass each task.

Each waterworks should identify the job position responsible for performing tasks. If known at the time the WBOP is prepared, identify the persons or companies filling each position, along with their company affiliation, address, phone number, fax, email address, qualifications, and any membership in professional water industry organizations. Use the worksheet in **Appendix B - Position and Responsibility Chart (Page 23)** to provide documentation of the following:

I. **BUDGET PLANNER/PREPARER** – List the persons, companies, or job positions responsible for budget preparation and administration

II. **TAX RETURNS AND ANNUAL AUDIT REPORTS** – List the persons, companies, or job positions responsible for preparation and administration

III. **OPERATIONS PERSONNEL** – Prior to issuance of an operation permit by ODW, the appropriate number and certification class of operators identified in **Part 1** must be employed by the waterworks.

The responsibility for each critical task identified below must be assigned to a certain job position or entity. In addition, if known at the time the WBOP is developed, provide the names and license numbers of the individuals or names of the entities listed below:

A. **Licensed operator** – The waterworks must have an agreement or contract with a licensed operator or have hired a qualified operator to be in responsible charge prior to the issuance of an operation permit by ODW. This information shall be made available to ODW prior to issuance of an operation permit. This position is responsible for operational modifications and is the operator-in-responsible-charge for the facility.

If known, list the operator-in-responsible-charge and the license number assigned by the Virginia Department of Professional and Occupational Regulation (DPOR).

If the individual is not known at the time the WBOP is developed, make a reference to ensure that this position is planned and budgeted.

B. **Other personnel** – List the persons, companies, or job positions responsible for routine operations. Include sample collection, maintenance, meter reading, repairs, emergency service, and routine daily maintenance. Describe the technical background and experience required to the operating personnel.

C. **Preventive maintenance** – List the persons, companies, or job positions responsible for preventive maintenance activities.

D. **Cross connection and backflow prevention program** – List the persons, companies, or job positions in charge of this program.

E. **Manager** – List the persons, companies, or job positions who will manage the waterworks, if different from the personnel listed above.

F. **Purchasing agent** – List the persons, companies, or job positions that will be responsible for major purchases required by the waterworks. Reference the operations contract agreement or the adopted policy enumerating these responsibilities.

Major purchases would include items such as well or booster pumps, pump controls, system control valves, or other critical operating equipment. The purchasing agent may be the manager, the day-to-day operating personnel, licensed operator, owner, governing board, or other person/entity identified in this plan.

G. **Billing and collections** – List the persons, companies, or job positions responsible for billing for water use and collecting on delinquent accounts.

H. **Customer service manager** – List the persons, companies, or job positions responsible for handling customer service, including complaints.

I. **Public affairs / press contact** – List the persons, companies, or job positions responsible for communicating with the public and press when critical issues arise.

IV. **PROFESSIONAL ENGINEER** – List the person(s) and firms(s) responsible for preparation of Preliminary Engineering Reports, plans and specifications, construction inspections, ongoing evaluations, and other technical reports. Provide their DPOR license numbers.

The term “professional engineer” as used in this document means a professional engineer licensed in Virginia. Refer to §12VAC 5-590-190 through 200 of the Virginia *Waterworks Regulations.*

Part 3
Management and Operations

The purpose of this section is to specify the commitments needed to provide effective management and operation of the waterworks. The objective of the information required and listed below is to define the issues to be resolved in managing and operating the waterworks, and to describe the necessary processes, methods, or tasks necessary to comply. Associated costs must be identified by the owner and included in the financial portion of this document (**Part 5**). Your WBOP submittal should include documentation of the following:

I. MANAGEMENT

A. Annual Budget – Describe the budget planning and preparation process and schedule.

B. Controls – Describe the controls that will be in place to keep operation within budget, and any sanctions or consequences for budget overruns.

C. Cost Sharing – Describe any sharing of physical plant, staff, or other items with other waterworks to reduce costs.

D. Operations – Provide a job description, signed agreement, and/or contract outlining the responsibility and authority between the owner and operator under which the proposed operator will serve.

E. Training Required – The DPOR regulations, in conjunction with the Virginia *Waterworks Regulations*, require that licensed operators receive a specified amount of training contact hours per licensing period. This information is reviewed and evaluated by DPOR prior to the re-issuance of an operator license.

For each operator position, describe how training requirements are addressed by agreements or contracts, or specified in operators' job descriptions, and identify requirements for obtaining and maintaining licensure. Indicate who will be responsible for coordinating or providing required operator training. Refer to the DPOR website at http://www.dpor.virginia.gov/dporweb/www_main.cfm or contact DPOR at (804) 367-2176 for a summary of operator training requirements.

F. Mandatory Connections (if applicable) – Describe any policy on mandatory hookup for connections in the waterworks' service area. Provide a copy of the policy, local code, or ordinance that establishes this guidance.

G. Insurance – Various state laws require that the owner have insurance coverage for the facilities. Identify if you have or will have insurance coverage and the type(s) of coverage. If no insurance coverage is provided, explain how replacement costs and liability will be covered.

II. OPERATIONS

A. Monitoring – Monitoring requirements for all waterworks are established by the *Waterworks Regulations*. Monitoring of various chemical, physical, bacteriological, or radiological parameters is required to determine compliance with state and federal drinking water standards. The *Waterworks Regulations* (12VAC5-590-340) states in part that "analyses for the purpose of demonstrating compliance…shall be performed by the Commonwealth of Virginia, Department of General Services, Office of Consolidated Laboratory Services (DCLS) or in laboratories certified by DCLS" and that "the owner is responsible for the collection and submission of all samples," and that "a sample is deemed to have been collected only if and when its results are made know to [the Office

of Drinking Water]." All water quality analyses must be in accordance with the latest edition of *Standard Methods for the Examination of Water and* Wastewater, published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation. Specific sampling requirements may differ depending on the classification of the waterworks, the type of source water in use, the type of treatment, and the population served. Because sampling requirements can be modified as state and federal regulations are developed or updated, you should contact your ODW Field Office for the most current requirements for your waterworks. In addition, your waterworks may need to submit monitoring plans, reports, or applications for approval prior to operation of the waterworks.

These monitoring requirements must be addressed in the WBOP. At a minimum, the owner must indicate awareness or understanding of these requirements as they affect the operating costs, staffing needs, and operation of the waterworks. The Appendices provide some examples that can be used to address these requirements in the WBOP.

1. **Bacteriological Sample Siting Plan** – this plan is required prior to issuance of an Operation Permit for all waterworks. Refer to **Appendix C - Bacteriological Sample Siting Plans (Page 25)** for the required documentation.

2. **Lead & Copper Sample Site Justification/Survey Plan** – A Lead & Copper Sample Site Justification/Survey Plan is required of all community and all NTNC waterworks. Existing waterworks will be required to complete this plan prior to approval of the WBOP. Because it may be impractical to determine the type of materials used in potential customers' homes until after the start up of the waterworks, this requirement is not usually due until a few months after startup. Contact your ODW Field Office for specific guidance on completing this task. Failure to comply with lead and copper action levels could require installation of corrosion control treatment, source treatment to remove these contaminants, and/or replacement service piping containing lead or copper. **See Appendix D – Lead and Copper Sample Site Justification/Survey Plan (Page 26)** for the required documentation.

3. **General chemical/radiological sample scheduling frequencies** – These sampling requirements are dependent on the classification of the waterworks. Testing frequencies and their associated costs should be documented in the WBOP.

   a. Community (C) waterworks are required to collect and analyze water samples from each entry point for inorganic chemicals, metals, nitrates/nitrites, volatile organic chemicals, and radiologicals.

   b. Non-transient non-community (NTNC) waterworks are required to monitoring the same parameters as community supplies, except for radiologicals.

   c. Transient non-community (TNC) waterworks are required to monitor for nitrates/nitrites only.

   The frequency of testing is dependent on whether the source water is from surface water or groundwater, and whether any contaminants were found to be present in source water development samples. Contact your ODW Field Office for specific monitoring requirements for inclusion in your WBOP.

4. **SOC waiver application** – All Community and nontransient noncommunity water sources require a determination of their potential vulnerability or susceptibility to contamination form Synthetic Organic Chemicals (SOC). The determinations are jointly made with ODW staff.
   A waiver application must be completed for each water source and submitted to the

ODW Field Office prior to the operation of the waterworks. ODW will then assign any SOC testing schedules as necessary. Contact the ODW Field Office for waiver application form(s). It may be necessary to complete a waiver application for SOCs in order to determine the SOC sampling frequencies and associated costs for documentation in the WBOP.

5. **Treatment monitoring** – Waterworks using treatment must provide additional monitoring information to show adequate control of the treatment process. The *Waterworks Regulations* provides suggested monitoring requirements.

   Contact the ODW Field Office for the specific monitoring requirements for the type(s) of treatment proposed for inclusion in the WBOP. Treatment monitoring data must be included in the operational reports described below.

6. **Disinfection/Disinfection Byproduct (D/DBP) Monitoring Plan** – Contact your ODW Field Office for the specific monitoring requirements for the type of treatment proposed for inclusion in the WBOP. Refer to **Appendix E – Disinfection / Disinfection Byproducts Monitoring Plan (Page 28)** for the required documentation to include in the WBOP.

B. Reporting

1. **Operation reports (monthly/quarterly)** – Operation reports are required by the ODW Field Office by the tenth day of the month following the reporting period. Reporting must include (but is not limited to) monthly water production, daily and average production, population and number of connections served, any chemicals used, and any other process monitoring requirements specified the by the ODW Field Office. Contact the ODW Field Office for example report forms for inclusion in the WBOB.

2. **Consumer Confidence Report** – The owner of a community waterworks is required to notify customers of the latest results of any water quality analyses and violations of the *Waterworks Regulations* annually. This report must be prepared and distributed no later that June 30 of the following calendar year. Regulations require that specific language be incorporated in the report to describe potential health effects resulting form exceeding water quality standards and violating the regulations. The owner is responsible for preparing, distributing, and notifying ODW of the report distribution. The owner must also supply a copy of the report to ODW. Provide documentation of how the waterworks will meet this requirement.

III. PROCEDURES

PROCEDURES – Routine maintenance activities and spare parts inventories are critical aspects of a waterworks' reliability and operations, and shall be adequately addressed.

Provide a copy of the written procedures as an attachment or identify the methods, procedures, and/or programs employed for:

A. Maintenance

1. **Routine waterworks maintenance** – Provide a maintenance schedule. The schedule shall include routine valve/hydrant inspections and exercise, routine flushing of the distribution systems, routine tank inspections, etc., as applicable.

2. **Production meter calibration, pressure monitoring, and customer meter testing** – Provide documentation of how these items will be provided.

3. **Leak detection** – Identify the measures the waterworks will take to identify and address leakage.

4. **Spare parts inventory** – Provide a spare parts inventory.

B. **Customer Billing and Collections** – Provide documentation of waterworks procedures for levying customer connection and availability fees, procedures for turnoffs, recovering unpaid water bills, making billing adjustments, and collecting reconnection fees.

C. **Customer Complaints** – Describe procedures for handling and documenting consumer complaints.

D. **Cross Connection Control and Backflow Prevention Plan** – Provide a description of the waterworks program. Model plans are available from ODW. A program must be approved before an operation permit can be issued.

E. **Safety** – Since its trained personnel are the waterworks' most important asset, an important phase of the waterworks operation is the protection of personnel thorough an active safety program. Include documentation of safety programs in use at the waterworks.

F. **Facility Security –** Refer to **Appendix F – Facility Security Top Ten List (Page 29)** for a list of security planning needs. The WBOP should provide a description of waterworks programs, policies, or procedures to address security.

V. OTHER INFORMATION

A. **Records** – Identify the retention period, types, and location for applicable records. Refer to **Appendix G – Record Retention Chart (Page 30)**.

B. **Emergency Planning** – Describe emergency procedures to be implemented during floods, drought, major equipment failure, security breaches, acts or terrorism, or source water contamination. See **Appendix H – Emergency Phone Numbers – State and Federal (Page 32)** for a worksheet to compile emergency phone numbers for inclusion in the WBOP.

C. **Existing Waterworks** – Address each of the following:

1. **Problems and complaints** – Describe occasions of pressure problems, shutdowns, outages, or customer complaints.

2. **Technical assistance** – Describe any regular or occasional technical assistance form outside sources, such as the state, consulting engineers, other utilities, or organizations specifically dedicated to providing technical assistance.

3. **Regulatory agency issues** – Describe deficiencies or concerns identified by any regulatory agency and plans for correction.

4. **Actions** – Describe any additional activities taken or planned to address operations and management issues.

5. **Consumption and flow** – Provide actual consumption and production values of the last twelve months. Use these values to compute water accountability.

Part 4
Planning

The purpose of this section is to address short- and long-term planning needed to identify facility and non-facility costs related to (1) meeting growth requirements or improving waterworks infrastructure to provide better services and reliability to existing customers, (2) replacing or renovating existing facilities, and (3) ensuring compliance with drinking water regulations. During this process, the owner may determine that it is necessary to develop a separate Capital Improvement Plan (CIP).

Much of the information needed to complete this part of the business plan may be provided by a Preliminary Engineering Report (PER). PERs are required during the permit application process for the construction of new waterworks or during waterworks expansion. Unless this information appears in a PER previously submitted to ODW, your WBOP submittal should include documentation of the following:

I. GENERAL INFORMATION

A. Impacts – Describe known or anticipated impacts on the source quantity or quality from outside water, sewerage, industrial, etc. facilities. Provide a description of how such impacts will affect operations.

B. Interconnections – Describe existing, currently proposed, or potential future interconnections with other waterworks.

C. Unmetered Use – Identify all unmetered water users. Describe any proposed plans for metering all customers.

D. Consolidation – Provide an evaluation of alternatives for consolidation with adjacent waterworks. Review institutional and facilities options.

E. Policies – Discuss water ordinances, regulations, policies, covenants, by-laws, water use agreements, or rules that may be needed to operate the waterworks. Identify policies currently in effect, and describe policies that may be need to be enacted.

II. CAPITAL IMPROVEMENT PROGRAMS (CIP)

A. Existing Service Area – Provide a description of the nature (residential, commercial, industrial) and extent (map) of the existing service area. Project population trends and growth in this service area for at least the next 20 years. Provide a similar description of any future areas to be served and any know potential water service deficiencies in those areas.

B. Growth – Discuss new growth-related capital improvements that address extensions of new service, installing new wells or piping facilities, or source water supply upgrades.

C. Future Compliance Requirements – After consultation with ODW, provide an assessment of future Safe Drinking Water Act (SDWA), Clean Water Act (CWA) or other compliance requirements that may potentially impact the operations, management, and finances of the waterworks.

D. CIP Plans - Discuss any plans for projects or capital improvements that are necessary to remain in compliance with the SDWA.

E. Inventory – Provide an inventory of all major facilities and equipment included in the waterworks. For each inventory item, include the initial costs, purchase or construction dates, useful life, replacement costs, and depreciation schedules. Depreciation schedules are not required if the waterworks is funding a replacement reserve fund.

F. **Replacement or Renovation** – Discuss plans to address replacement or renovation of existing facilities within a six-year budget period.

G. **Non-facility Expenditures** – Discuss any non-facility improvements that may be included as a capital improvement expenditure for the waterworks. A non-facility improvement may be a rate analysis, re-codification, development of ordinances, preparation of operations and maintenance manuals, safety program development, etc.

H. **Funding** – Discuss how the capital improvement expenditures identified will be funded. Funding may include water rates, reserves, non-water revenues, loans, grants, or special charges.

Part 5
Financial

The purpose of a financial analysis is to verify that the owner has a reasonable expectation of generating sufficient revenue to operate a reliable waterworks over the long term. Initially a six year projection of revenues and expenses is prepared and submitted to ODW by the owners or his consultant for review. Financial worksheets must be submitted annually for the first two years, and annually thereafter until ODW determines the worksheets can be waived based on satisfactory performance and compliance. For existing systems, it may be appropriate to include the current year, prior year, and four projected years.

I. The financial analysis is completed by using the following worksheets. Consult your ODW Field Office to determine which worksheets are required for your waterworks. Refer to **Appendix I - Explanation of Financial Worksheet Line Items – Developing a Waterworks Budget (Page 34)** for a description of each line of the Worksheet 1 forms (this appendix applies to Worksheets 1A, 1B, 1C, and 1D).

Worksheet	Completed by
Worksheet 1A - Initial Submittal With Historical Data	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks, with two or more years of historical financial data
Worksheet 1B - Initial Submittal Without Historical Data	New Community waterworks and new Noncommunity waterworks that are wholesale suppliers to a community waterworks. This form may also be used by existing waterworks with less than two years of financial data
Worksheet 1C - Annual Submittal	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks
Worksheet 1D - Initial Submittal and Annual for Two Years	Existing or new Noncommunity waterworks that are not wholesale suppliers to a community waterworks
Worksheet 2 - Projection of Water Revenues	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks
Worksheet 3 - Operating Cash Reserve Disclosure	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks
Worksheet 4 - Emergency Reserve Disclosure	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks
Worksheet 5 - Financial Analysis Summary Sheet	Existing Community waterworks and existing Noncommunity waterworks that are wholesale suppliers to a community waterworks
Worksheets are available in Adobe Acrobat or Microsoft Excel at http://www.vdh.virginia.gov/drinkingwater/owners/permit_applications_wbop.htm or from your ODW Field Office. Clicking on the worksheet name (above, in blue) will open an Adobe Acrobat version of the worksheet. Adobe Acrobat worksheets are designed to be completed online, or they can be printed for manual completion. If you are completing the Adobe Acrobat forms online, please note that your entries cannot be saved to your computer. After completing the forms online, print, sign (if applicable) and copy the forms for your records. The Microsoft Excel worksheet can be saved to your computer.	

The financial analysis is used not only as a tool for determining waterworks financial capacity, but also may be used as a public disclosure document for existing and potential waterworks customers. At the option of the owner, the results of the financial analysis may be distributed to the customers of the waterworks. Some options for distributing this information include newsletters, annual reports, or bill attachments.

A. **Provisions for Nontransient noncommunity (NTNC) waterworks** - Owners of NTNC waterworks (with the exception of those that wholesale drinking water) submit only Worksheet 1D to fulfill the financial portion of the WBOP. To quality for this simplified submittal requirement, they must complete Worksheet 1D, and they must certify that their normal business budget includes a line item to account for the waterworks' total expenses. These expenses will be those not covered elsewhere in their normal business budget. Such items as electric power, staffing, office supplies, etc. may be accounted for in the normal budget, and thus may not need to be included in Worksheet 1D. If appropriate, the owner or his agent needs to state that the item identified in Worksheet 1D is budgeted elsewhere, and that no separate dollar figures are required.

No reserves will be required for NTNC waterworks, and household income is not relevant. No projection of water revenue is needed for NTNC waterworks not wholesaling drinking water. Therefore, Analysis No. 1.b (**Page 15**) will be the only test needed to pass in the Financial Analysis.

B. If a public water supply system is regulated by the State Corporation Commission (SCC), or if the waterworks is owned and operated by a local government entity that is a new waterworks owner, the waterworks is required to establish a general accounting system. The owner or agent of these systems should consult with the SCC for more details.

II. Steps to Completing the Financial Analysis for Community and NTNC waterworks that wholesale drinking water

A. **Step 1** - Using the facilities inventory developed in **Part 4**, identify current and projected future replacement costs. (For-profit tax entities need to establish a depreciation schedule based on generally accepted accounting principles.) These costs will be used to complete the estimation of expenses for the waterworks, projected over a six- year window.

B. **Step 2** - Complete the appropriate version of **Worksheet 1** for your facility. Existing systems may need to prepare or have on hand the following:

1. Comparative financial analysis of prior years

2. A schedule of current and anticipated long-term debt.

3. Current cash investments, terms, and budgeted revenue.

4. Pro-Forma income tax returns for "for-profit" tax entities.

C. **Step 3** - Complete **Worksheet 2**. Worksheet 2 is necessary to evaluate the adequacy of proposed or current rate schedules. This worksheet includes initial revenues based on current rate schedules, or based on minimum rates required per funding agency agreements or other binding contracts, etc.

D. **Step 4** - Complete **Worksheet 3**. A waterworks must be capable of meeting operations expenses between billing cycles. This worksheet is necessary to determine the operating cash reserve required to meet these water system needs. This reserve is based on at least 1/8 of the operating and maintenance, and the General and Administration expenses outlined in Worksheet 1.

E. **Step 5** - Complete **Worksheet 4**. A waterworks is required to establish and maintain an emergency reserve that is sufficient to cover the replacement costs of the most vulnerable water system components. This worksheet is necessary to identify those components and establish the funds necessary to cover those costs.

F. **Step 6** - Complete **Worksheet 5**. Worksheet 5 consists of four related financial comparisons to determine the financial strength of the waterworks. This covers a forward-looking six year period. The first three analyses examine the adequacy of the waterworks' projection of revenues and expenses, operating cash reserve, and emergency reserve. The fourth analysis, the household median income, allows evaluation of the water rate impact on waterworks customers. The four tests are described below.

1. Analysis #1 - Revenue and Expense Projection Summary

a. Community waterworks and NTNC wholesalers of drinking water - While completing Worksheet 1 and Worksheet 2, an owner reviews whether sufficient revenue is generated to meet estimated expenses. Small non-municipal waterworks are generally limited in the amount and type of non-rate revenue available to them. If the waterworks does not have sufficient revenue to meet all of its expenses, it should either raise its water rates or reduce non-essential expenses. Worksheet 2 can be used to estimate rates that should be charged to cover expenses.

TEST: Revenues – Expenses > 0

b. NTNC waterworks that do not wholesale drinking water are allowed to simplify the WBOP financial section as noted previously. No revenue is generated from the sale of drinking water and no reserves are required.

TEST: Was Worksheet 1D completed and certification statement signed?

2. Analysis #2 - Create and fund an Operating Cash Reserve - This analysis requires the owner to demonstrate the ability to withstand cash-flow fluctuations. There can be a significant length of time between when a waterworks provides a service and when a customer may pay for that service. A study of the waterworks' historic cash-flow can accurately quantify the time period between delivery and payment for service. A 45-day difference is the generally accepted industry norm.

The Operating Cash Reserve is essentially the checkbook balance an owner maintains to meet cash-flow needs and provide contingency funds for unforeseen operating emergencies. The basic test for this analysis is: "Does the owner have an operating cash reserve? If so, is this reserve at least 1/8 of the annual operating and maintenance (O&M) and general and administrative (G&A) expenses outlined in Worksheet 1?

TEST: Operation Cash reserve ≥ 1/8 x (Annual O&M + G&A Vulnerable Facility)

If a waterworks does not presently have an existing Operating Cash Reserve equal to or greater than 1/8 its annual operating budget (O&M and G&A), it must demonstrate how this reserve will be funded or demonstrate its ability to withstand cash-flow fluctuations.

This reserve can be funded initially with a one-time charge, a transfer of funds from

an existing reserve or funds accumulated in the first year of the budget in the Operating Cash Reserve line item (Worksheet 1, line 43), or a line of credit established with a local bank or lending authority.

3. **Analysis #3 - Create and fund an Emergency Reserve** - In the Business Plan or Preliminary Engineering Report, a waterworks owner conducts a vulnerability assessment to establish the facility equipment most prone to failure. Generally, replacement costs of a production well, a source of supply, the largest pumping equipment, or key transmission lines represents the most vulnerable facility, and is used to estimate the minimum Emergency Reserve amount.

   The third analysis requires the owner to demonstrate the ability to cover the costs of failure of its most vulnerable waterworks component. This can be accomplished either by developing and funding an Emergency Reserve, or obtaining an alternative financing arrangement.

   Determining the emergency reserve level for a waterworks is also a function of management objectives and overall waterworks reliability. If an owner creates an Emergency Reserve, this reserve can be funded initially with a one time charge, a transfer of funds from existing reserves, funds accumulated in the six year budget in the Emergency Reserve line item (Worksheet 1, line 48), or an alternative financing arrangement.

   TEST: Emergency Reserve ≥ Cost of Most Vulnerable Facility

4. **Analysis #4 - Conduct a Median Household Income Index Analysis** - This analysis applies only to community water systems. It requires the waterworks owner to measure the rate impact of increased operating and facility expenses on the waterworks users.

   a. Compute 2 percent of the respective community's average annual median household income (MHI). The MHI is a value set for localities by the U.S. Census Bureau.

   b. Determine the current and projected average annual residential water bill (for all six years) using either the flat rate or metered rate (for a metered rate, compute average bill from an estimate of average annual residential use identified in your plan)

   c. Compare the existing and projected average annual residential bill to 2 percent annual MHI for all six years.

   This analysis provides an indication of a residential connection's ability to pay the existing and projected rates. When rates exceed 2 percent of the MHI in any year of the budget, the waterworks' rates may not be affordable.

   TEST: Rates ≤ 2 percent x MHI

Complete all the above steps and submit the completed Financial Analysis Worksheets with the initial WBOP submittal to ODW for review and approval. The Financial Analysis is to be repeated annually during the first two years of waterworks operation, and the results are to be submitted to ODW. The analysis may continue annually thereafter, at the discretion of ODW.

III. Financial Analysis - Pass/Fail Consequences

The waterworks owner has direct control over the outcome of the first three analyses, by adjusting rates, or by creating reserves. The fourth analysis, however, is only to be used as a tool for determining if the rates are affordable. It may not be within the power of the owner to assure that water rates are less than 2 % of median household income (MHI). The MHI information is available in the federal census data.

It is important to note the consequences of either passing or failing the financial analysis with respect to public health and waterworks development. The following consequences apply to either passing or failing the first three financial analyses.

1. **Passing the first three financial analysis** - The waterworks owner, by passing the first three financial analyses may be able to manage, operate and maintain a successful waterworks; respond in an emergency situation by obtaining needed resources; plan for and implement needed improvements to supply growth without interruption; improve working relations with lending institutions; facilitate the documentation process for existing and potential financial assistance programs.

2. **Failing the first three financial analyses** - Failure to pass the first three financial analyses could lead to a determination by ODW that the waterworks has insufficient financial capacity. This determination could result in: denial of ODW construction and operation permits; denial of building permits by local governments; denial of home mortgages by lending institutions; or receivership action ordered by the courts after action initiated by the Virginia Department of Health.

   Waterworks that fail any of the first three financial analyses may be able to **restructure**, an alternative to growth curtailment or possible receivership action. In this case, alternatives include:

   a. Merging with an adjacent waterworks.

   b. Acquisition by another waterworks owner.

   c. Governmental formation of a water department, water authority or sanitary district.

   d. Contracting for management, operation and maintenance services from a qualified operator.

   The financial analyses can be used as a tool where restructuring is being considered to assist in determining the cost to restructure, or comparing the cost associated with a selected restructuring alternative to the cost to achieve and maintain compliance as an independent waterworks.

3. **Fourth Financial Analysis Consequences** - Passing the fourth analysis indicate that rates are within a range generally accepted as affordable. If a waterworks rates are above this range, the owner should recognize that rates may be unaffordable to waterworks users. If a waterworks fails the fourth analysis, ODW suggests the owner investigate restructuring options and notify waterworks users of them.

Part 6
Checklist and Certification Statement

The following Certification Statement (**Page 19**) must be signed and submitted with your WBOP documents. This form should also be completed in subsequent years when updated financial worksheets are submitted to ODW.

Use the checklist on **Page 20** to assemble your WBOP submittal package. Assembling the documents in the order shown in the checklist will facilitate processing and review by ODW.

Waterworks Business Operations Plan
Certification Statement

Instructions: Complete the certification statement (required) and confidentiality statement (optional) and include it with your initial submittal of a Waterworks Business Operations Plan. This form should also be used with the subsequent annual submittals of updated financial worksheets.

This form can be completed online, or a blank form can be printed manually. If completing online, print, sign, and date the form before mailing or faxing to the Office of Drinking Water Field Office in you region. Retain a copy of the completed form for your records.

Waterworks:
City/County:
PWSID Number:
Type of Waterworks: ☐ Community ☐ Nontransient-noncommunity ☐ Transient-noncommunity

The following statement should be completed and signed by the owner or authorized agent responsible for preparation of the Waterworks Business Operations Plan submitted to the Virginia Department of Health for review and approval.

Preparer's Signature

I have prepared the attached documents and hereby submit them for review and approval by the Virginia Department of Health.

Printed Name: Title:

_____ _____
Preparer's Signature Date

Confidentiality Request (optional)

I request that this business plan be retained in confidence to the extent allowed by § 32.1-172 B of the *Code of Virginia*.

Printed Name:

_____ _____
Owner's Signature Date

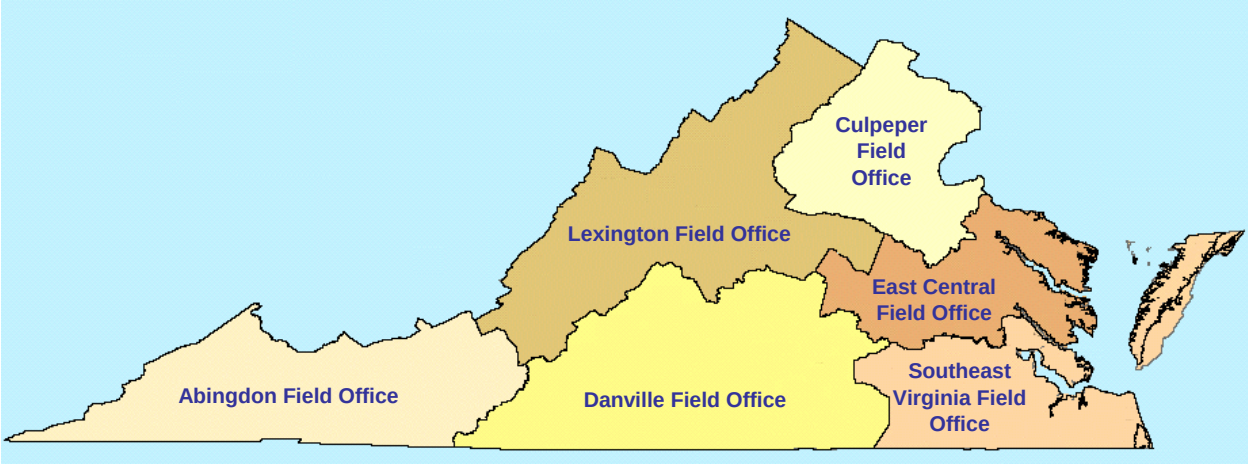
Checklist of WBOP Attachments

Part 1 – Facility Description and Waterworks History			
☐ Owner Information	☐ Facility Description	☐ Operator Requirements	
Part 2 - Staffing			
☐ Position and Responsibility chart (Appendix A)			
Part 3 – Management and Operations			
☐ Management Issues……..…	☐ Annual Budget	☐ Operations	☐ Insurance
	☐ Controls	☐ Training Required	
	☐ Cost Sharing	☐ Mandatory Connections	
☐ Operations Issues……	☐ Monitoring…….	☐ Bacteriological Sample Siting Plan	☐ SOC Waiver Application
		☐ Lead and Copper Sample Site Justification / Survey Plan	☐ Treatment Monitoring
		☐ General Chemical / Radiological Sampling Scheduling	☐ Disinfection / Disinfection Byproduct Monitoring
	☐ Reporting …….	☐ Operation Reports	☐ Consumer Confidence Report
☐ Procedures……..……....	☐ Maintenance……	☐ Routine Waterworks maintenance	☐ Spare Parts Inventory
		☐ Meter Calibration, Pressure Monitoring, Meter Testing	☐ Customer Billing and Collections
		☐ Leak Detection	
	☐ Customer Complaints		
	☐ Cross Connection Control and Backflow Prevention Plan		
	☐ Safety		
	☐ Facility Security		
☐ Other Operation and Management..	☐ Records		
	☐ Emergency Planning		
	☐ Existing Waterworks……....	☐ Problems and Complaints	☐ Actions
		☐ Technical Assistance	☐ Consumption and Flow
		☐ Regulatory Agency Issues	
Part 4 - Planning			
☐ General Information……..…	☐ Impacts	☐ Unmetered Use	☐ Policies
	☐ Interconnections	☐ Consolidation	
☐ Capital Improvement Program…….....	☐ Existing Service Area	☐ CIP Plans	☐ Non-Facility Expenditures
	☐ Growth	☐ Inventory	☐ Funding
	☐ Future Compliance Requirements	☐ Replacement or Renovation	
Part 5 - Financial			
☐ Worksheet 1A – Initial Submittal With Historical Data			
☐ Worksheet 1B – Initial Submittal without Historical Data			
☐ Worksheet 1C - Annual Submittal			
☐ Worksheet 1D – Initial Submittal and Annual for Two Years			
☐ Worksheet 2 – Projection of Water Revenues			
☐ Worksheet 3 –Operating Cash Reserve Disclosure			
☐ Worksheet 4 - Emergency Reserve Disclosure			
☐ Worksheet 5 – Financial Analysis Summary Sheet			
Part 6 – Submittal Checklist and Certification Form			
☐ Certification Statements			

Appendices

Appendix A

ODW Field Office Locations



ODW Field Offices	Service to…
Abingdon Field Office 454 East Main Street Abingdon, VA 24210 Phone (276) 676-5650 Fax (276) 676-5659	The counties of Bland, Buchanan, Carroll, Dickenson, Floyd, Giles, Grayson, Lee, Montgomery, Pulaski, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe, and the cities of Bristol, Galax, Norton, and Radford
Lexington Field Office 131 Walker Street Lexington, VA 24450 Phone (540) 463-7136 Fax (540) 463-3892	The counties of Albemarle, Alleghany, Augusta, Bath, Botetourt, Clarke, Craig, Fluvanna, Frederick, Greene, Highland, Louisa, Nelson, Page, Roanoke, Rockbridge, Rockingham, Shenandoah, and Warren, and the cities of Buena Vista, Charlottesville, Covington, Harrisonburg, Lexington, Roanoke, Salem, Staunton, Waynesboro, and Winchester
Southeast Virginia Field Office 830 Southampton Avenue Norfolk, VA 23510 Phone (757) 683-2000 Fax (757) 683-2007	The counties of Accomack, Dinwiddie, Greensville, Isle of Wight, James City, Northampton, Prince George, Southampton, Surry, Sussex, and York, and the cities of Chesapeake, Colonial Heights, Emporia, Franklin, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg
East Central Field Office 300 Turner Road Richmond, VA 23225 Phone (804) 674-2880 Fax (804) 674-2815	The counties of Charles City, Chesterfield, Essex, Gloucester, Goochland, Hanover, Henrico, King and Queen, King William, Lancaster, Mathews, Middlesex, New Kent, Northumberland, Powhatan, Richmond, and Westmoreland, and the city of Richmond
Danville Field Office 1347 Piney Forest Road Danville, VA 24540 Phone (434) 836-8416 Fax (434) 836-8424	The counties of Amelia, Amherst, Appomattox, Bedford, Buckingham, Brunswick, Campbell, Charlotte, Cumberland, Franklin, Halifax, Henry, Lunenburg, Mecklenburg, Nottoway, Patrick, Pittsylvania, and Prince Edward, and the cities of Bedford, Danville, Lynchburg, Martinsville, and South Boston
Culpeper Field Office 400 South Main Street Culpeper, VA 22701 Phone (540) 829-7340 Fax (540) 829-7337	The counties of Arlington, Caroline, Culpeper, Fairfax, Fauquier, King George, Loudoun, Madison, Orange, Prince William, Rappahannock, Spotsylvania, and Stafford, and the cities of Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas, and Manassas Park

Appendix B

Position and Responsibility Chart

Position Responsibility	Name/Company	E-mail Address	Address	Phone Number	FAX	Professional Organization
Owner						
Office Location						
Budget						
Planner/Preparer						
Tax Preparation						
Annual Audit Reports						
Operations Personnel						
Licensed Operator						
Other Operations Personnel						
Preventive Maintenance						
Cross Connection and Backflow Prevention Program						
Manager						

Appendix B (cont)

Position and Responsibility Chart

Position Responsibility	Name/Company	E-mail Address	Address	Phone Number	FAX	Professional Organization
Purchasing Agent						
Billing and Collections						
Customer Service Mgr						
Public Affairs/Press Contact						
Engineering Personnel						
Professional Engineer						

Appendix C

Bacteriological Sample Siting Plans

Choose one of the following to include in WBOP:

I. We have prepared a plan for the routine sampling of coliform bacteria for ODW approval. The attached plan indicates the number of samples and sites for the routine sampling each (month/quarter) from the water distribution system. The number of routine samples will be in accordance with the requirements in 12 VAC5-590-370A of the *Waterworks Regulations*.

II. We have not completed a list of our initial customer connections at this time. We will submit a plan for the routine sampling of coliform bacteria to ODW and obtain approval prior to operation of the waterworks. The plan will indicate the number of samples and sites for the routine sampling each (month/quarter) from the water distribution system. The number of routine samples will be in accordance with the requirements in 12 VAC5-590-370A of the *Waterworks Regulations*. A draft copy of the proposed plan is attached but does not identify the proposed sample locations.

III. Our approved Bacteriological Sample Siting Plan, which was approved by ODW on _____ is attached.

Appendix D

Lead and Copper Sample Site Justification/Survey Plan

Choose one of the following to include in WBOP:

I. A Lead & Copper Sample Site Justification Plan has been prepared for ODW review and approval. The attached plan provides the results of the materials survey of customer service and household or building plumbing in accordance with the September 1991 US EPA document entitled "Lead And Copper Rule Guidance Manual, Volume I: Monitoring".

A. We will be required to collect [5, 10, 20, 60 or 100] samples, based on population, during each of two initial 6 month monitoring periods. If sample results meet the required 90th percentile action levels, monitoring will be reduced to half the initial number of samples (minimum of 5) during two subsequent annual sampling events and the frequency can be reduced to once every three years following these annual sampling events. We understand that we may be required to instruct our customers on the proper procedures for collecting these samples.

B. If our waterworks fails to meet the action levels for lead or copper, engineering plans and specifications will be submitted to the ODW for review and approval that includes the necessary measures to meet the action levels. These measures may include either corrosion control treatment, piping modifications to eliminate the source of lead and copper in the distribution system or treatment to eliminate these contaminants from the source water. Also, if the 90th percentile lead action level is exceeded we understand that we will be required to initiate public education in accordance with the Rule.

C. If the waterworks fails to meet action levels after installation of treatment, it is our understanding that the State can require that certain water quality parameters be maintained and monitored.

II. We have not completed a list of our initial customer connections at this time. A Lead & Copper Sample Site Justification Plan will be submitted for ODW review and their approval obtained prior to the operation of the waterworks. The proposed plan will include the materials survey of customers service and household or building plumbing in accordance with the September 1991 US EPA document entitled "Lead And Copper Rule Guidance Manual, Volume I: Monitoring".

A. We will be required to collect [5, 10, 20, 60 or 100] samples, based on population, during each of two initial 6 month monitoring periods. If sample results meet the required 90th percentile action levels, monitoring will be reduced to half the initial number of samples (minimum of 5) during two subsequent annual sampling events and the frequency can be reduced to once every three years following these annual sampling events. We understand that we may be required to instruct our customers on the proper procedures for collecting these samples.

B. If our waterworks fails to meet the action levels for lead or copper, engineering plans and specifications will be submitted to ODW for review and approval that includes the necessary measures to meet the action levels. These measures may include either corrosion control treatment, piping modifications to eliminate the source of lead and copper in the distribution system or treatment to eliminate these contaminants from the source water. Also, if the 90th percentile lead action level is exceeded, we understand that we will be required to initiate public education in accordance with the Rule.

C. If the waterworks fails to meet action levels after installation of treatment, it is our understanding that the State can require that certain water quality parameters be

maintained and monitored.

III. We have attached a copy of our approved Lead & Copper Sample Site Justification Plan, which was approved by ODW on _____.

A. If our waterworks fails to meet the action levels for lead or copper, we may be required to initiate distribution of the required public education material and submit engineering plans and specifications to ODW for review and approval that includes the necessary measures to meet the action levels. These measures may include either corrosion control treatment, piping modifications to eliminate the source of lead and copper in the distribution system or treatment to eliminate these contaminants from the source water. Also, if the 90th percentile lead action level is exceeded, we understand that we will be required to initiate public education in accordance with the Rule.

B. If the waterworks fails to meet action levels after installation of treatment, it is our understanding that the State can require that certain water quality parameters be maintained and monitored.

Appendix E

Disinfection/Disinfection By-Products Monitoring Plan

Choose one of the following to include in your WBOP if you will provide any form of disinfection:

I. We have prepared and attached a plan for the routine monitoring of disinfection residuals for [chlorine, chloramines and/or chlorine dioxide]. The plan also provides for the monitoring of TOCs and alkalinity and DBPs [TTHMs & HAA5s, chlorite and/or bromate]. This plan includes sampling locations and schedules, and includes procedures for calculating compliance with PMCLs, MRDLs and Treatment Techniques in accordance with the EPA manual entitled "DBPR Implementation Guidance Manual". (Contact ODW Staff for appropriate plan form)

II. We have not completed a list of our initial customer connections at this time. We have submitted a draft plan for the routine monitoring of disinfection residuals for [chlorine, chloramines and/or chlorine dioxide]. The plan will provide for the monitoring of TOCs and alkalinity and DBPs [TTHMs & HAA5s, chlorite and/or bromate]. Sampling locations and schedules will be provided in the final plan when they are identified prior to operation of the proposed waterworks. The draft plan includes procedures for calculating compliance with PMCLs, MRDLs and Treatment Techniques in accordance with the EPA manual entitled "DBPR Implementation Guidance Manual. (Contact ODW Staff for appropriate plan form)

III. **Ou**r D/DBP Monitoring Plan, was approved by ODW on _____.

Appendix F

Facility Security Top Ten List

DRINKNG WATER SECURITY
AND EMERGENCY
PREPAREDNESS

Security and emergency response planning have always been an important part of managing a drinking water system. Recent events have made homeland security a national priority. We urge water suppliers to take time now to examine their own operations and to identify and implement needed improvements to water system security and emergency preparedness

I. **Perform a security vulnerability assessment** to find out where your system may be vulnerable, and to decide what steps would be effective to help improve your security

II. **Prepare (or update) an Emergency Response Plan**. Make sure all employees receive training on the plan and know what their roles are in an emergency

III. **Post emergency 24-hour numbers** at your facilities in highly visible areas (office, pumphouse door, in vehicles, at home). Make sure they are updated and give them to key personnel. Provide your contact numbers to local law enforcement and response officials.

IV. **Get to know your local police** and ask them to add your facilities to their routine rounds. Practice emergency response procedures with local police, emergency response and public health officials.

V. **Fence** your drinking water facilities and vulnerable areas (e.g. wellheads, manholes, pumphouse, treatment buildings and storage tanks). Inspect your fence and gates, fix any places where it can be easily climbed over, through, or under.

VI. **Lock** entry gates and doors and all access points to your finished water, especially when your system is untended and where the access is where you cannot watch it. **Lock** monitoring wells to prevent vandals or terrorists from pouring contaminants directly into ground water near your source. Set alarms to indicate illegal.

VII. **Install good lighting** around your pumphouse, treatment facility and parking lot. Consider motion activated lighting, especially within fenced areas.

VIII. **Limit access to your water system**. Do not allow anyone unassociated with your system to enter or wander around your facility. Verify the identity of delivery people. Request strangers to leave, or call local law enforcement if you have trespassers.

IX. **Monitor water quality** aggressively and be observant for unusual conditions including signs of intrusion and/or contamination (unusual water color, odors, sheens, fish kills and sudden increased chlorine demand).

X. **In the event of an emergency,** follow your emergency response plan

Appendix G

Record Retention Chart

PLAN FOR MAINTAINING RECORDS		
TYPE OF RECORDS	**LOCATION**	**RETENTION PERIOD****
	Fill in the location of your records	
**This is the minimum retention periods as provided by General Schedule No. 7 "Retention and Disposition Schedule" developed by the Commonwealth of Virginia, Library of Virginia, Records Management Office under the provisions of the Virginia Public Records Act, Section 42.1-7, Code of Virginia, effective 2/15/1996.		
General Records		
Administrative records - please refer to the Library of Virginia's General Schedule 19 for an extensive list of these requirements, which includes such topics as agendas, agreements between government, various government documents meeting minutes, consultants' reports and so forth. Some specific items follow which may be required for some projects.		
Consultants Reports		5 years
Emergency Planning Records		2 years after superseded
Environmental Impact Statements		Permanently
Feasibility Studies		Permanently
Grant Records (non-fiscal)		5 years after termination
Information & Public Education records		Retain until superseded
Investigative files, records & reports		3 years after final action
Legal Opinions		Permanently
Litigation Case Files		5 years after final disposition or as long as necessary
Annual Report (copy)		Permanently
Safety Records		3 years after last action
Work Orders		3 years
Safety Records		3 years after last action
Fiscal Records - please refer to the Library of Virginia's, General Schedule 2, for a complete listing		
Accounts payable and receivable		3 years or until audit which ever is longer
Audit records (external)		Permanently
Audit Records (internal)		8 years after audit
Budget Records (Record Copy)		Permanently
Budget Records (Working files)		5 years after adopting budget
Cash Reports & Records (Settlements & transmittals)		3 years or until audit, which ever is longer
Check/Warrant records (Bank statements, duplicate check files, credit card receipts, deposit records, financial accounting reports, and journals & reports)		3 years or until audit
Check/Warrant records (Cancelled check files, Registers, and ledger cards)		5 years or until audit, which ever is longer
Contracts		5 years after expiration or until audit, which ever is longer
Fixed Asset Files		Retain until superseded
Grant Files		3 years , until audit or as required by grant
Insurance Records		3 years after policy expiration or until audit, which ever is longer
Invoices		5 years or until audit, which ever is longer

Appendix G (cont)

Record Retention Chart

TYPE OF RECORDS	LOCATION	RETENTION PERIOD**
Ledgers (General)		10 years
Payroll (Gross salary deduction authorizations, permits, time and attendance, W-2, tax statements, salary/tax withholding)		5 years after being superseded
Payroll (leave, ledgers & reports, compensation requests, retirement contributions, deduction documentation)		3 years or until audit, which ever is longer
Purchasing Records (Bids & bid proposals, purchase orders & requisitions, receipts, reimbursements & reports		3 years or until audit, which ever is longer
Purchasing Manuals		Until superseded
Purchasing logs & registers		3 years after completion See Vouchers
Retirement files: employment (locally managed)		3 years after death or until no longer vested
Retirement (VRS)		3 years or until audit, which ever is longer
Unemployment (claims, investments & reports)		5 years or until audit, which ever is longer, or case closure
Workman's Compensation Records		5 years or until audit, which ever is longer
Retirement (VRS)		3 years or until audit, which ever is longer
Personnel Records - please refer to the Library of Virginia's, General Schedule 3, for a complete listing		
Accident / Illness		5 years after incident
Employee Personnel files		5 years after departure
Employee Certification / Qualification records		3 years after employee departure
System Design and Construction		
Final & as-built drawings, highway agreements or permits, title documentation and specification documents		Permanently
Other Records (Working plans, drawings, specifications and correspondence)		5 years after project completion, audit or until all terms of contracts and agreements are fulfilled which ever is greater
General Utility Records		
Billing registers		3 years after audit
Fuel accounting records		3 years after audit
Meter reading records		1 years after audit
Service records		3 years after audit
Permits		3 years after expiration
Miss Utility Records		5 years
Water well completion reports		5 years after abandonment
Waterworks Operation Records		
Bacteriological records		5 years
Chemical analysis records		10 years
Cross-connection control records		10 years
Sanitary survey records		10 years
Variance and exemption records		5 years after expiration
Violation correction records		3 years after last action

Appendix H

Emergency Phone Numbers - State and Federal

AGENCY NAME	PHONE NUMBER
VA Department of Health Office of Drinking Water http://www.vdh.virginia.gov/DrinkingWater/	(804) 864-7500
FIELD OFFICE	
1 Abington	(276) 676-5650
2 Lexington	(540) 463-7136
3 South East	(757) 683-2000
4 East Central	(804) 674-2880
5 Danville	(434) 836-8416
6 Culpeper	(540) 829-7340
VA Dept of Emergency Management (VDEM) - Info http://www.vaemergency.com/index.cfm	1-800-468-8892
VDEM – Environmental Emergency Response	(804) 674-2400
VDEM –Regional Coordinators http://www.vaemergency.com/programs/lss/coords.cfm#5	
Department of Conservation & Recreation http://www.dcr.virginia.gov/	
Main Office	(804) 786-1712
Fish and Wildlife Research	(804) 367-1000
http://www.dgif.state.va.us/contact/	
Local Conservation Agent	Refer to Website
http://www.dgif.state.va.us/about/offices.asp	
http://www.dgif.state.va.us/about/district-offices-hatcheries.pdf	
VA Division of Consolidated Laboratories (DCLS) http://dcls.dgs.state.va.us/index.aspx	
State Laboratory – Richmond	(804) 648-4480
Regional Laboratory - Abington	(276) 676-5435
VA Department of Environmental Quality http://www.deq.virginia.gov/	1-800-592-5482
Richmond Office	(804) 698-4000
VA Rural Water Association http://www.vrwa.org/ http://www.nrwa.org/saDir.htm	(540) 261-7178
Environmental Protection Agency Region III (EPA) http://www.epa.gov/region03/index.htm	(215) 814-5000
24 -hour Emergency number	1-800-698-4000
Safe Drinking Water Hotline	1-800-426-4791

Appendix H (cont)

Emergency Phone Numbers State and Federal

State Highway Patrol Headquarters 1-800-553-3144
http://www.vsp.state.va.us/Office_Locations.shtm

FBI http://www.fbi.gov/homepage.htm (202) 324-3000
FIELD OFFICES http://www.fbi.gov/contact/fo/territory.htm#v
Richmond http://richmond.fbi.gov/ (804) 261-1044
Washindton D.C. http://washingtondc.fbi.gov/ (202) 278-2000
Norfolk http://norfolk.fbi.gov/ (757) 455-0100

U.S. Marshal Service http://www.usdoj.gov/marshals/ (703) 274-2013
Eastern District of Virginia (703) 837-5500
http://www.usmarshals.gov/district/va-e/index.html
Western District of Virginia (540) 857-2230
http://www.usmarshals.gov/district/va-w/index.html

OTHER AGENCIES

EPA Office of Emergency Management 1-800-424-9346
http://www.epa.gov/swercepp/

EPA Solid Waste and Emergency Response
Chemical/Oil Spill Hotline National Response Center 1-800-424-8802
http://www.epa.gov/oswer/emergencies.htm
http://www.epa.gov/reg3hwmd/iacp/index.htm
U.S. Coast Guard Region III Response Team
http://www.uscg.mil/d5/msafety/rrt/index.htm
USCG National Response Team
http://www.uscg.mil/d5/msafety/rrt/index.htm

National Weather Service http://www.noaa.gov/index.html 1-800-221-2659
http://www.nws.noaa.gov/stormready/stormmaps/va-cwa.htm
http://www.nws.noaa.gov/

Call Before You Dig http://www.missutilityofvirginia.com/ 1-800-552-7001

National Rural Water Association http://www.nrwa.org/ (580) 252-0629
http://www.nrwa.org/saDir.htm

National Poison Control Center http://www.poison.org/ 1-800-222-1222

Appendix I

Explanation of Financial Worksheet Line Items Developing a Waterworks Budget

This Appendix contains a description of each line in Worksheets 1A, 1B, 1C, and 1D.

Sources for Budget Information

Whenever possible, use known historical costs when developing a budget. If no historical cost information exists, the waterworks owner, or a consultant, is responsible for estimating annual budget expense.

For projecting unknown expenses into the future, use the waterworks **inflation** factor (see Line 6). If a line items not applicable to your specific waterworks, insert a zero.

Budget Accuracy Check

In addition to developing a budget projection, an owner needs to review the accuracy of past waterworks budgets. By comparing actual final performance against past projections, an owner can identify any discrepancies and update the budget. Use Financial Worksheet I to compare budgeted and actual performance. An owner should use this worksheet throughout the budget planning period(s).

Explanation of Worksheet Line Items

Line 1 Revenue	The first category of the operating budget is revenue. Revenues are sources of income to the waterworks. The following descriptions explain the various revenue sources typically available to waterworks. Some of these actually act as a direct offset to capital improvements and are explained with the expenses in the Capital Improvement Plan section. Listed below are brief descriptions of these major categories and methods of forecasting revenues for the operating budget.
Line 2 Water Sales	The water sales line includes all money received for supplying water service. To forecast total water sales, you must know the number of service connections and amount of water sold by the waterworks. Look for this information in the waterworks' Preliminary Engineering Report (PER), if it is available. After projecting a water sales forecast and number of service connections, calculate a forecast of water revenues using Worksheet 2 - Projection of Water Revenues.
Line 3 Fees and Service	Include all other miscellaneous fees and charges for service provided other than for water service and connection fees (e.g., bad check fees, reconnect fees, meter analyzing fees, etc.). Include initial first time hookup charges (connection fees) on Line 38 "Special Charges."
Line 4 Other Revenue	Includes all other revenue that does not apply to the categories above. This line could include savings deposit interest or interest earned on other investments.
Line 5 Total Revenue	In the revenue section of the budget, the importance of tying information together, as well as utilizing a common forecast of service connections and consumption throughout the budget process, is critical.
Line 6 Expenses	The second major section of an operating budget is the identification of the waterworks' expenses. Expenses include all those activities or purchases that incur cost or increase waterworks assets. Expenses can be estimated in various ways. One method bases the projections on historical experience. This can be accomplished by using historical costs and escalating them for known and projected changes. An example of a known change would be an increase in labor costs for the budget period due to known or anticipated salary increases. As stated earlier, an example of a projected increase or escalation in costs would be a **5% annual inflation rate**. Materials and Supplies expense, for instance, would be expected to increase with the projected inflation rate.

Line 7 **Operating and Maintenance Expenses (O&M)**	These expense items refer to all expenses incurred by the waterworks in the production and delivery of water to customers; for example, operator salaries, power to operate the pumps, chemicals for treating water.
Line 8 **Salaries and Benefits (Operator)**	Include all compensation to employees of your waterworks when the work is related to the waterworks' operation and maintenance (O&M). This account should not include compensation of officers, directors, or general and administrative staff. For new waterworks, O&M labor costs should be identified for each year of the six year budget. Volunteer labor is not applied. For existing waterworks it is advisable that professional Virginia licensed operators be employed and O&M labor costs be identified in the budget for all six years. For existing waterworks currently utilizing volunteer labor, O&M labor cost for outside operational assistance must be identified for at least the first year of the budget. To calculate this amount, a new waterworks or a waterworks currently using volunteer labor should contact a qualified operator and obtain an annual cost estimate to operate the waterworks (labor cost only). Non-volunteer costs for operational assistance do not have to be identified for subsequent years unless professional O&M is required.
Line 9 **Power and Other Utilities**	Include the cost of all-electric power, water, telephone, and any other waterworks-related expenses incurred in producing and delivering water.
Line 10 **Chemicals for Treatment**	Include the cost of all chemicals used in the treatment of water. Also include the cost of any chemicals manufactured by the waterworks and used in providing waterworks service.
Line 11 **Monitoring**	Include all water monitoring costs incurred by the waterworks. This includes both in-house monitoring and analysis costs, and outside laboratory costs. Contact the state lab or a state certified lab for current fee schedules.
Line 12 **Materials, Supplies, and Parts**	Include all materials and supplies used in the O&M of the waterworks and in producing and delivering water to the customer. Include any repairs or parts needed in producing and delivering water. This would include grease and oil, and minor repairs to equipment that do not significantly increase the life of the equipment beyond its normal usefulness. This should not include materials used for administrative purposes such as postage, copying, billing forms, or paper.
Line 13 **Transportation Expenses**	Include all expenses related to trucks, automobiles, construction equipment, and other vehicle expense used in producing and delivering water to the customer.
Line 14 **Miscellaneous Expenses**	Include all other expenses not included in the previous O&M expenses which were incurred in producing and delivering water.
Line 15 **Total Operation and Maintenance Expenses**	Add Lines 8 through 14
Line 16 **General and Administrative Expenses (G&A)**	These expenses are considered overhead and are not directly related to the O&M of the daily production and delivery of water to the customer. This category includes billing and administrative costs incurred by the waterworks. For example, all meter-reading costs, secretarial cost, postage, publications, reference material, uncollectable debt, insurance, accounting services, and all other overhead items belong in this subsection.
Line 17 **Salaries and Benefits**	Include all compensation to employees of your waterworks in which the work is related to the administration of the waterworks, such as officers, directors, secretarial, and meter-reading salaries and benefits. Do not include compensation of operators in this account. Do note omit estimates for non-volunteer labor for smaller waterworks when outside assistance is anticipated.
Line 18 **Office Supplies and Postage**	Includes all materials and supplies used in the administration of the waterworks. This includes office supplies, postage, copier charges, and paper.
Line 19 **Insurance – Vehicles, Liability, Worker's Compensation**	Include all insurance costs associated with the coverage for the vehicles, general liability, workers' compensation insurance, and other insurance costs related to the operation and administration of the waterworks.
Line 20 **Legal and Accounting**	Include all salaries and wages associated with legal, auditing, and accounting functions for the waterworks. This includes outside legal and accounting assistance.
Line 21 **Engineering and Professional Services**	Include all engineering and other professional service expenses associated with the planning and design requirements of the waterworks. It does not include services for capital improvements projects; these are to be capitalized with the associated project.

Line 22 **Fees**	Include all regulatory expenses for zoning and planning approvals. Also include the annual fee for the Waterworks Operating Permit received from VDH.
Line 23 **Miscellaneous Expenses**	All other expenses not included in the previous general and administrative expenses. For example all expenses associated with employee training and operator licensure requirements (class, registration fee, travel, etc.), public relations campaign and public notification may be included in this category.
Line 24 **Total General and Administrative Expenses**	Add Lines 17 through 23
Line 25 **Depreciation Expense**	Depreciation only applies to waterworks that are currently depreciating assets. Waterworks that are already charging a depreciation expense must identify the actual depreciation expense as a separate item. For a waterworks that is not currently charging an expense for depreciation for tax purposes, and would like to do so, the waterworks may want to contact an accountant to generate a legally justifiable depreciation expense. For all other waterworks, addressing replacement of existing facilities is discussed in the Replacement Reserve discussion. To avoid double-counting of the cost of using the asset, do not include depreciation if the waterworks includes a funds Replacement Reserve depreciation for any fixed asset for which the waterworks has an outstanding debt.
Line 26 **Total Expenses**	Add Lines 15+24+25
Line 27 **Taxes**	Your waterworks may incur a variety of taxes such as state utility tax, business and occupation (B&O) tax, property tax and or federal income tax. Account for each of these taxes separately within the operating budget.
Line 28 **Annual Debt payments – Loans/Bonds (Principal and Interest)**	Annual debt payments are the cost associated with the repayment of short-term and/or long-term borrowing (also called debt retirement). If desired, subdivided between interest and principal payments. Include debt coverage costs on this line. Provide details for each loan note or bond.
Line 29 **Total Outstanding Debt – Loans/Bonds (Principal and Interest)**	Identify the total of all outstanding debt. This figure will help the waterworks keep track of its existing financial condition. The line entry will change annually with each annual debt payment installment.
Line 30 **Capital Improvement Program (CIP) Expenditures**	Taken directly from the waterworks' PER /Business Plan Capital Improvement Program, this line includes facility and non-facility costs related to 1) meeting growth requirements or improving waterworks' infrastructure to provide better service and reliability to existing customers, 2) replacing or renovating existing facilities, or 3) ensuring compliance with drinking water regulations. Non-water revenue from *loans, grants, and special charges* may act as direct offsets to these capital expenditures. The unfunded difference is the net capital improvement program costs that must be provided from water revenues. Include professional services associated with Capital Improvement projects.
Line 31 **New Capital Improvement Facilities**	Include all costs incurred to purchase new or growth-related facilities, excluding major facilities required by the SDWA (see Line 33). These new or growth-related capital improvements can be for extensions of new service, installing new wells or piping facilities or new facilities that are not replacing existing facilities (i.e., all new facility costs except replacement facilities). New CIP costs should be consistent with the waterworks' PER/Business Plan improvement program.
Line 32 **Renewal and Replacement Facilities**	Include all costs for renovating or replacing existing waterworks facilities. Renewal and replacement costs for capital improvements should be consistent with the waterworks' improvement program.
Line 33 **Safe Drinking Water Act Facilities**	Include all costs which you know or anticipate will be incurred to install major facilities to remain in compliance with the SDWA. SDWA related capital improvements should be consistent with the waterworks' Preliminary Engineering Report/Business Plan improvement program.
Line 34 **Non-facility Costs**	Include all costs contained in the waterworks' Capital Improvement Program that are not facility related. For example, costs to implement a conservation program may be included in this line. Non-facility costs should be consistent with the waterworks' PER/Business Plan improvement program.
Line 35 **Capital Sources**	Include the source of monies used to pay for all or part of the capital expenditures identified above (Line 31+32+33+34).

Line 36 **Loan Funds**	Include monies received from short-term or long-term debt used to pay capital improvement costs. A waterworks may borrow monies from a local bank, from state funding sources, or may sell bonds. The loan or borrowed monies are shown under "Loan Funds," and the corresponding debt associated with the borrowing of these monies is shown under "Debt Payments." For every loan outstanding, there should be a corresponding debt payment shown.
Line 37 **Grants**	Include monies received from local, state or federal agencies which usually do not require repayment. Grants usually require the waterworks to contribute a portion of the project cost in order to receive the grant funding. For every grant shown, there should be an offsetting dollar amount shown under "New CIP", "Renewal or Replacement", "SDWA" capital expenditures, or non-facility costs.
Line 38 **Special Charges**	Include monies received from customers connecting to your waterworks for the first-time. These special charges are considered a buy-in to the waterworks. Special charge monies are to be used only for new CIP. They should be collected and accounted for in a separate cash fund. You should use all special charge monies to pay for new CIP. If you have more special charge monies than new CIP shown in the budget, the difference should be set aside in a separate cash fund (Emergency Reserve) and can be used during another budget cycle to pay for new CIP. Never use the special charge monies for daily operating expenses.
Line 39 **Withdrawal from Existing Reserves**	Include monies that the waterworks has previously generated and accumulated. These funds could have originated from any of the revenue sources (Lines 2-4). These funds can be taken from the Emergency reserve. If, by withdrawing funds from the Emergency reserve, the waterworks reserve level falls below the cost to replace the most vulnerable facility, the waterworks should demonstrate how this reserve will be reestablished within one year.
Line 40 **Net CIP from Rates**	Lines 31+32+33+34)-(Lines 36+37+38+39) Those CIP expenditures not identified in the capital sources section will have to be paid for with water revenue.
Line 41 **Operating Cash Reserve**	The Operating Cash Reserve section of the budget has three separate lines: Minimum Required Balance, Annual Installment and the Running Balance.
Line 42 **Minimum Required Balance**	The minimum balance equals **1/8** the amount of the expenses identified in the operation and maintenance (O&M) (Line 15) and general administration (G&A) (Line 24) line items. For each year of the budget, if the O&M and G&A are increased, the minimum required operating cash reserve balance must increase.
Line 43 **Annual Installment**	The annual installment is the dollar amount the waterworks puts into the reserve for that particular year of the budget.
Line 44 **Running Balance**	The running balance represents the balance at the end of the planning year (i.e., if the owner adds funds to the reserve, the running balance will increase. If the waterworks is required to take funds from the reserve for an emergency, the running balance would temporarily show a decrease until the waterworks restores the reserve balance). The **Operating Cash Reserve** is accounted for separately from the capital and special charge monies. For new and existing waterworks, the total Operating Cash Reserve running balance should be identified in the first year of the budget. Once the Operating Cash Reserve monies are fully funded, no further changes to the Operating Cash Reserve running balance are needed unless the waterworks' O&M or G&A expenses change. As O&M or G&A costs change, a yearly adjustment will be needed. The reserve balance is computed by multiplying the total of O&M, and G&A expenses by 0.125 **(1/8)**. This analysis should be reviewed each budget cycle to ensure the Operating Cash Reserve is adequately funded. The monies are considered a "restricted" balance and should only be used for O&M and G&A emergencies. If it is necessary to use some of the funds, they should be replenished within one year of withdrawal. To set up an Operating Cash Reserve the owner selects an appropriate account and discloses the necessary information on the Operating Cash Reserve Disclosure Form and Financial analysis Summary Form.
Line 45 **Emergency Reserve**	The Emergency Reserve section of the budget also has three separate lines: Minimum Balance, Annual Installment and the Running Balance.
Line 46 **Minimum Required Balance**	Represents the cost to replace the most vulnerable and critical facilities or equipment, which may impact the reliability of the waterworks as identified in the waterworks' PER/Business Plan. Refer to previous list (C4, II. e) of facilities and select the most vulnerable for use in this calculation.

Line 47 **Annual Installment**	The annual installment is the dollar amount the waterworks puts into the reserve for that particular year of the budget.
Line 48 **Running Balance**	The running balance represents the balance at the end of the planning year (i.e., if the owner adds funds to the reserve, the running balance will increase. If the waterworks is required to take funds from the reserve for an emergency, the running balance would temporarily show a decrease until the waterworks restores the reserve balance). This reserve is considered a "restricted" balance and should be accounted for separately from the **Operating Cash Reserve** and the special charge monies discussed above. The owner can either fund this reserve with a one-time funding charge or can demonstrate that the reserve will be funded with projected annual installments for the budget cycle (6 years). If used, restore the reserve within the planning year. As an alternative to funding the **Emergency Reserve** with cash, the owner may be able to obtain a second-party assurance or commitment**.** This is confirmed in a written agreement. Your waterworks may be assessed a fee for establishing a financial assurance alternative, but is only required to utilize and pay back funds if an emergency occurs. Financial assurance alternatives include surety bonds, guarantees and lines of credit. When an owner selects an approved financial assurance alternative, he must disclose the necessary information on the Emergency Reserve Disclosure Form. Calculate the interest earned on the Emergency Cash Reserve and show it on line 4.
Line 49 **Replacement Reserve**	The Replacement Reserve section of the budget also has three separate lines; instead of a Minimum Required Balance, the Replacement Reserve has a Target Balance, An Annual Installment line and a Running Balance line. Ideally, the owner will have identified a replacement program in the PER/Business Plan. The PER/Business Plan also includes plans for financing future improvements. Given the barriers and high transaction costs-to-debt financing that small waterworks face, ODW encourages small waterworks owners to start a Replacement Reserve so that they have cash on hand to fund future improvements. The owner must decide what amount will be contributed to a Replacement Reserve. A simple formula would be to divide the **total** waterworks replacement cost to include parts, labor, etc, as determined in the PER/Business Plan, minus the existing amount in the Emergency Reserve, by a 20 year period. There are many benefits that the waterworks will receive by funding this reserve including: 1. accumulated cash will lessen the financial burden of future improvements, 2. improved financial strength of the waterworks which may improve the terms of future debt, 3. existing reserves could provide any required matching funds for loan and grant programs, and 4. the waterworks earns interest on the reserve that when reinvested into the reserve, reduces the required investment to achieve the needed balance. Starting and routinely funding a Replacement Reserve will spread the economic burden of future costs over a longer period and lessen rate shocks to the customers on the waterworks.
Line 50 **Target Balance**	The targeted amount chosen by the owner to contribute to the Replacement Reserve for funding future improvements.
Line 51 **Annual Installment**	Represents the dollar amount that the waterworks is planning on generating from revenues committed to the Replacement Reserve for that year. As this reserve is voluntary, the formula for computing the annual installment amount is at the discretion of the waterworks. ODW recommends the water system make annual installments be over the remaining life of the facilities based on the annuitized amount need to accumulate the future replacement valve (less the existing reserves in the Emergency Reserve).
Line 52 **Running Balance**	The running balance represents the balance at the end of the planning year (i.e., if the owner adds funds to the reserve, the running balance will increase. If the waterworks is required to take funds from the reserve, the running balance would temporarily show a decrease until the waterworks restores the reserve balance).
Line 53 **Total Revenue Required**	Compute the total amount of funds that a waterworks will have to generate to meet all waterworks costs by adding lines 26+27+28+40+43+47+51.

Line 54 **Budget Surplus or Deficit**	The last step of the budget process is to see if the waterworks is generating sufficient revenues to meet the total revenue required. This is calculated by deducting total revenue required (Line 53) from the total revenue line (Line 5). There is a budget surplus if the difference is positive and a budget deficit if the difference is negative. If your waterworks has a deficit, you should review your expenses and raise your water rates to generate sufficient income or reduce non-essential expenses. If there is a surplus of funds, ODW recommends that the surplus funds be put into one of the reserve accounts.
Line 55 **2% Median Household Income**	The financial analysis uses a water rate affordability benchmark of 2 % of the median household income (MHI) for the waterworks' service area. If a waterworks' rate exceeds 2% MHI, the rate may be unaffordable. The waterworks should identify 2 % of the annual median household income.
Line 56 **Projected Monthly Residential Bill**	The last step in the water rate analysis is to project the monthly water bill. This figure is computed on Worksheet 2, Line 6. This figure is compared to the 2 % MHI for as the forth financial analysis.